3.2 HIGH SCHOOL EAST STUDY SITE

3.2.1 Qualitative Site Description

Physical description. The site (Figure 7) covering approximately four ha is composed of a large borrow pit from which fill for the high school site was taken. In addition, there is an area of shrubs and small trees which was extensively altered. Historical photography shows that these alterations occurred some time between 1949-59. Previously these areas were Chincoteague ridge and swale terrain. The boundary of the site on the western and northwestern side runs along the edge of the high school fill. The northern boundary is the so-called jeep trail which runs across the island. The eastern side of the boundary runs through a forested area close to another smaller, open water area which lies off the site.

Definitions. The WIA consists of the site as outlined by the EPA (boundaries described above). The basin for this site includes the borrow pit, the ditch which runs from the borrow pit to the jeep trail, and the jeep trail ditch itself as it runs west into Chincoteague Bay. The sub-watershed for the site consists of one or two ridges of large pines which lie along the southeast edge of the site and forested areas which lie to the south and southeast of the site.

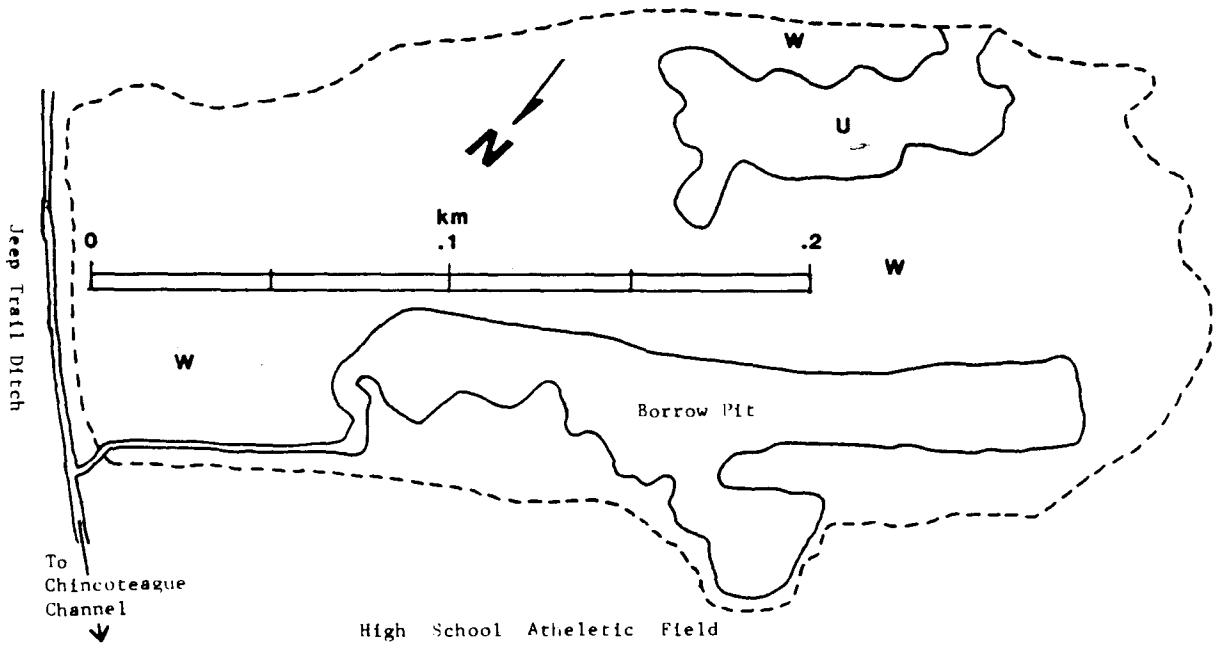


Figure 7. Map of High School East WIA showing wetland (w) and upland (u) areas. Major outlet is indicated by arrow that depicts the direction of water movement from the site.

Qualitative vegetation description. There is an area of emergent wetlands which lies around the borrow pit. This is dominated by Phragmites, Spartina patens, Iva and other shrubs and wetland plants. Much of the site consists of a disturbed shrub/scrub community along with limited areas identifiable as remnant upland ridges dominated by loblolly pine and swales dominated by red maples. The cover in the disturbed areas consists of honeysuckle, wax myrtle, poison ivy, greenbriar, and occasional mid-sized loblolly pines.

Wetland classification. Most wetlands at this site are palustrine scrub/shrub and palustrine forested wetlands. The emergent wetland areas around the borrow pit are estuarine emergent (due to daily incursions of estuarine water through the ditch from the jeep trail ditch).

Substrate, salinities. Soils underlying the site are sand or sandy loam with a thin layer of organic matter. Upland areas may also contain some loam. Salinities in the borrow pit and associated ditches may range as high as 20-25 ppt during dry periods. Palustrine wetland adjacent to the borrow pit usually have salinities below 1 ppt and rarely above 5 ppt.

Wildlife use. There is ample evidence of use by waterfowl, small mammals, and fishes at this site. Both the borrow pit and the borrow pit to the east of the site appear to be utilized by ducks and wading birds during much of the year. There is evidence of use by animals such as raccoons, rabbits and other small mammals throughout the site. Because of the connection and close proximity of the jeep trail ditch and Chincoteague Bay there appears to be considerable access to the borrow pit and ditches by estuarine fishes.

Hydrologic functions. During wet periods, water appears to drain into this site from the south and southwest by sheet flow. There is a drainage ditch which connects the borrow pit in this site with a similar pit to the east. There appears to be drainage from the eastern areas through the drainage ditch to the borrow pit at this site during wet periods. Surface flow leaves the site via the drainage ditch which connects the borrow pit with the jeep trail ditch and ultimately Chincoteague Bay. There is some tidal fluctuation as far up the drainage ditch as the borrow pit. During dry periods drainage in palustrine areas probably occurs vertically into the surface aquifer.

Because of the extent of wetland and borrow pit area, this site probably has moderate to high ground water recharge potential and high flood water storage potential. The wetland vegetation and soils should produce high nutrient retention potential.

3.2.2 Adamus and Stockwell Evaluations: High School East

Summary Sheet D

This form is the appropriate place for recording the ratings that result from use of the interpretation procedures and keys in Sections 2.1.2, and 2.2.2. As each analysis is completed, enter its rating (high,moderate, or low; or A, B, or C) in the relevant box until all boxes for functions of interest are filled.

Begin by labeling the context of the analysis (pre- or post- construction, with or without mitigation, name of basin and WIA). Then enter the data, using the numbered footnotes to help locate the associated analyses. For the evaluation of each function's Effectiveness, enter whichever rating is higher--That for the basin or that for the WIA. The evaluation of the impact vector is optional.

BASIN _____ WIA _____ PROJECT _____

EVALUATION TIME FRAME (PRE/POST) _____ MITIGATION PLAN # _____

FUNCTION	EFFECTIVENESS[1]	OPPORTUNITY[1]	FUNCTIONAL RATING[1]	SIGNIFICANCE[2]	FUNCTIONAL SIGNIFICANCE[2]
GROUND WATER RECHARGE[3]	moderate	moderate	moderate	moderate	moderate
GROUND WATER DISCHARGE[4]	moderate		moderate	high	high
FLOOD STORAGE[5]	high	low	moderate	high	high
SHORELINE ANCHORING[6]	high	low	moderate	moderate	moderate
SEDIMENT TRAPPING[7]	moderate	moderate	moderate	high	high
NUTRIENT RETENTION					
LONG-TERM[8]	moderate	high	high	high	very high
SEASONAL[8]	high	high	high	high	very high
FOOD CHAIN SUPPORT					
DOWNSTREAM[9]	moderate		moderate	moderate	moderate
IN-BASIN[9]	moderate		moderate	moderate	moderate
FISHERY HABITAT					
WARMWATER[10]	low		low	moderate	low
COLDWATER[10]					
COLDW.RIVERINE[10]					
ANADROMOUS RIV.					
SPECIES[10] Winter Fl.*	moderate		moderate		moderate
WILDLIFE HABITAT	high		high	moderate	high
GENERAL DIVERSITY[10]	breeding	winter			
WATERFOWL GP.[10] 1 **	NA	moderate	moderate		moderate
WATERFOWL GP.[10] 2	moderate	NA	moderate		moderate
SPECIES[10] Wood Duck		moderate	moderate		moderate
SPECIES[10] _____					
SPECIES[10] _____					
ACTIVE RECREATION[10]				moderate	
SWIMMING	low		low		low
BOAT LAUNCHING	moderate		moderate		moderate
POWER BOATING	low		low		low
CANOEING	low		low		low
SAILING	low		low		low
PASSIVE RECREATION AND HERITAGE[10]				moderate	moderate
IMPACT VECTOR RATING[21]					

FOOTNOTES

These entries will be based on analyses in the following parts of Volume II (numbers correspond to footnotes above):

[1]-Forms A, A1 (p. 6, 51); [2]-Section 2.1.2.2. (p. 97); [3]-Forms B, B1 (p. 38, 54); [4]-Section 2.1.2.2. (p. 97); [5]-Interpretation key in Section 2.1.2.1. p. 57; [6]-p. 59; [7]-p. 60; [8]-p. 62; [9]-p. 64; [10]-p. 67; [11]-p. 67; [12]-p. 69; [13]-p. 71; [14]-p. 73; [15]-p. 75; [16]-p. 79; [17]-p. 80; [18]-p. 84; [19]-p. 91; [20]-p. 92; [21]-p. 93.

*Winter Flounder **Winter Only

High School East

Response Sheet A1

THRESHOLD ANALYSIS: FUNCTIONAL OPPORTUNITY AND EFFECTIVENESS

This sheet is the appropriate place for recording the responses to corresponding questions in Form A. A "yes" (Y) or "no" (N) response must be circled for all parts of each question, even when the response seems obvious. This response sheet has two major columns--"WIA" and "BASIN", and within each of these, three subcolumns entitled "X", "W", and "D", which address, when relevent, the seasonal changes in some of the predictors, as follows:

> X column responses are those addressing either (a) the average annual condition, or (b) the condition intermediate between the wettest and driest annual conditions (e.g., late June in most Prairie pothole wetlands), or (c) the condition of maximum annual standing crop of wetland plants, or (d) if tidal, the average daily mid-tide condition.
>
> W column responses are those addressing what the area would look like (a) during the wettest time of an average year, or (b) if the area is tidal, what it would look like during an average daily high tide (flooded) condition.
>
> D column responses are those addressing what the area would look like during either the driest time of the year (questions pertaining to hydrology) or if the question pertains to vegetation, then during the dormant time of the year. If the area is tidal, "D" refers to its daily low tide (exposed) condition.

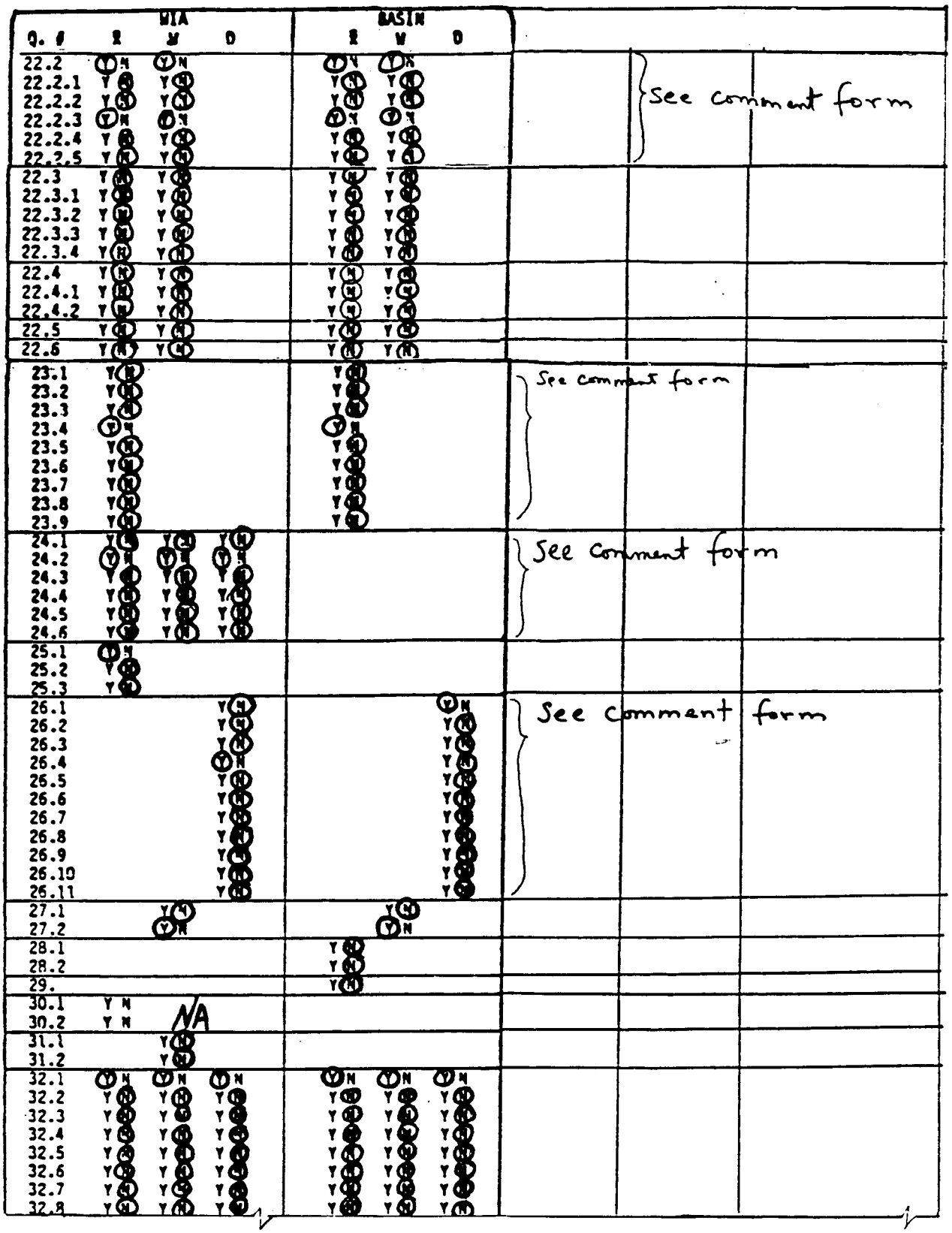
For example, question 2.1.1 should first be asked and answered in the context of the WIA's (wetland impact area's) average condition, then in terms of its wettest condition, then the basin's average condition, and finally the basin's wettest condition. This should then be repeated for question 2.1.2. Because no Y/N choice is given in either "D" column, the area's dry or dormant condition need not be evaluated for this question. Similarly, some questions will require responses only for the WIA or basin, but not both.

Q. #	WIA X	WIA W	WIA D	BASIN X	BASIN W	BASIN D	
Office-type Data							
1.1	(Y) N	(Y) N	Y (N)	(Y) N	(Y) N	Y (N)	See comment form
1.2	(Y) N	(Y) N	Y (N)	(Y) N	(Y) N	Y (N)	See comment form
1.3	Y (N)	Y (N)	(Y) N	Y (N)	Y (N)	(Y) N	See comment form
1.3.1	(Y) N	(Y) N	(Y) N	(Y) N	(Y) N	Y (N)	

High School East

Q. #	MIA X	MIA W	MIA D	BASIN X	BASIN W	BASIN D			
2.1.1	Y (N)	Y (N)		Y (N)	Y (N)				
2.1.2	Y (N)	Y (N)		Y (N)	Y (N)				
2.2.1	Y (N)	Y (N)		Y (N)	Y (N)				
2.2.2	Y (N)	Y (N)		Y (N)	Y (N)				
3.1					Y (N)				
3.2					Y (N)				
4.1	Y (N)								
4.2	Y (N)								
5.1					Y (N)				
5.2					Y (N)		See	Comment	form
6.1		Y (N)					See	Comment	form
6.2		Y (N)					See	Comment	form
7.1				Y N					
7.2				Y N			See	Comment	form
8.1					Y (N)				
8.2					Y (N)		See	Comment	form
9.1				Y N					
9.2				Y N			See	Comment	form
10.1	Y (N)								
10.2	Y (N)								
10.3	Y (N)								
10.4	Y (N)								
11.1	Y (N)								
11.2	Y (N)								
12.1		Y (N)							
12.2		Y (N)							
13.1		NA		Y N					
13.2				Y N					
14.	Y (N)			Y (N)					
15.1	Y (N)						See	Comment	form
15.2	Y (N)						See	Comment	form
15.3	Y (N)						See	Comment	form
15.4	Y (N)						See	Comment	form
15.5	Y (N)						See	Comment	form
15.6	Y (N)						See	Comment	form
15.7	Y (N)						See	Comment	form
16.	Y (N)						See	Comment	form
17.1	Y (N)								
17.2	Y (N)								
18.	Y (N)								
19.	Y (N)								
20.				Y (N)					
21.1	Y (N)								
21.2	Y (N)								
21.3	Y (N)								
21.4	Y (N)								
21.5	Y (N)								
21.6	Y (N)								
Field-type Data									
22.1	Y (N)	Y (N)		Y (N)	Y (N)				
22.1.1	Y (N)	Y (N)		Y (N)	Y (N)				
22.1.2	Y (N)	Y (N)		Y (N)	Y (N)				
22.1.3	Y (N)	Y (N)		Y (N)	Y (N)				
22.1.4	Y (N)	Y (N)		Y (N)	Y (N)				
22.1.5	Y (N)	Y (N)		Y (N)	Y (N)				

High School East



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O. #	MIA E	MIA W	MIA O	BASIN E	BASIN W	BASIN O			
33.1	Y N	Y N	Y N	Y N	Y N	Y N			
33.2	Y N	Y N	Y N	Y N	Y N	Y N			
33.3	Y N	Y N	Y N	Y N	Y N	Y N			
33.4	Y N	Y N	Y N	Y N	Y N	Y N			
33.5	Y N	Y N	Y N	Y N	Y N	Y N			
33.6	Y N	Y N	Y N	Y N	Y N	Y N			
33.7	Y N	Y N	Y N	Y N	Y N	Y N			
33.8	Y N	Y N	Y N	Y N	Y N	Y N			
34.1	Y N	Y N	Y N	Y N	Y N	Y N	See comment form		
34.2	Y N	Y N	Y N	Y N	Y N	Y N			
34.3	Y N	Y N	Y N	Y N	Y N	Y N			
34.4	Y N	Y N	Y N	Y N	Y N	Y N			
34.5	Y N	Y N	Y N	Y N	Y N	Y N			
34.6	Y N	Y N	Y N	Y N	Y N	Y N			
34.7	Y N	Y N	Y N	Y N	Y N	Y N			
34.8	Y N	Y N	Y N	Y N	Y N	Y N			
35.1	Y N	Y N					See comment form		
35.2.1				Y N					
35.2.2				Y N					
35.2.3				Y N					
36.	Y N			Y N			See Comment form		
37.1		Y N							
37.2			Y N						
38.1				Y N	Y N	Y N			
38.2	Y N	Y N	NA						
39.1	Y N								
39.2	Y N								
39.3	Y N								
39.4	Y N								
39.5	Y N								
39.6				Y N			See comment form		
40.	Y N	Y N	NA						
41.1				Y N	Y N	Y N			
41.1.1				Y N	Y N	Y N			
41.1.2				Y N	Y N	Y N			
41.1.3				Y N	Y N	Y N			
41.2				Y N	Y N	Y N			
41.2.1				Y N	Y N	Y N			
41.2.2				Y N	Y N	Y N			
41.2.3				Y N	Y N	Y N			
41.3				Y N	Y N	Y N			
41.3.1				Y N	Y N	Y N			
41.3.2				Y N	Y N	Y N			
41.3.3				Y N	Y N	Y N			
41.4				Y N	Y N	Y N			
42.1	Y N	Y N	Y N				See Comment form		
42.2	Y N	Y N	Y N						
42.3	Y N	Y N	Y N						
43.	Y N	Y N	Y N	Y N	Y N				
44.1				Y N	Y N		See Comment form		
44.2				Y N	Y N				
45.1	Y N								
45.2	Y N								
46.1	Y N								
46.2	Y N								
46.3	Y N								
46.4	Y N								
47.1	Y N								
47.2	Y N								
48.1	Y N	Y N							
48.2	Y N	Y N							

High School East

Q. #	MIA E	MIA W	MIA D	BASIN E	BASIN W	BASIN D			
49.1				Y (N)					
49.2				(Y) N					
50.	Y (N)	Y (N)	Y (N)				See comment form		
51.		Y (N)					See comment form		
Detailed Data									
52.1.1	Y N } NA								
52.1.2	Y N }								
52.2.1	(Y) N						see comment form		
52.2.2	(Y) N								
53.1	Y N								
53.2	Y N NA								
54.1	Y N								
54.2	Y N NA								
55.	Y (N)								
56.	NA			Y N					
57.1	Y N								
57.2	Y N								
57.3	Y N } NA								
57.4	Y N								
58.1	Y N								
58.2	Y N								
58.3	Y N NA								
58.4	Y N								
59.1				Y N					
59.2				Y N					
59.3				Y N NA					
60.1						Y N			
60.2				Y N					
60.3				Y N NA					
61.1	Y N								
61.2	Y N NA								
62.	Y N NA								
63.1				NA		Y N			
63.2						Y N			
64.				NA		Y N	see comment form		
65.	(Y) N								
66.1		Y N		NA		Y N			
66.2		Y N NA				Y N			
67.1		Y N		NA		Y N			
67.2		Y N NA				Y N			
68.1	Y N			NA		Y N			
68.2	Y N NA					Y N			
Derived Responses									
69.1	Y N								
69.2	Y N								
70.1	Y N								
70.2	Y N								
71.1	Y N								
71.2	Y N								
72.1	Y N								
72.2	Y N								
73.1	Y N								
73.2	Y N								
74.1	Y N								
74.2	Y N								
75.1	Y N								
75.2	Y N								

After responses to all possible questions (Form A) have been recorded above, turn to Form B (page 38). You will(as an option) return to this sheet (in Section 2.1.2) to interpret the above responses.

High School East

Response Sheet B1

THRESHOLD ANALYSIS: SIGNIFICANCE

This sheet is the appropriate place for recording the responses to the corresponding questions in Form B. Circle Y (yes) or N (no), being careful to note that the order of Y and N below frequently reverses.

General

1.1 (N) Y
1.2 (N) Y
1.3 (N) Y
1.4 (N) Y
1.5 (N) Y
1.6 (N) Y
2. Y (N)

See Comment form for Chincoteague Ridge/swales

Recharge

3. Y N ?
4. Y (N)
5. Y (N)
6. Y (N)
7. (Y) N
8. Y (N)
9. (Y) N
10. (N) Y

See Comment form for Chincoteague Ridge/Swales

Discharge

11. Y N
12. (Y) N
13. Y (N)
14. (Y) N
15. (N) Y

See Comment form for Chincoteague Ridge/swales

Flood Storage

16. Y N
17. Y (N)
18. (Y) N
19. (Y) N
20. (Y) N
21. (Y) N
22. (N) Y

See Comment form for Chincoteague Ridge/Swales

Shoreline Anchoring

23. Y (N)
24. (Y) N
25. (Y) N
26. (Y) N
27. Y (N)
28. Y (N)
29. (N) Y

See Comment form for Chincoteague Ridge/Swales

Sediment Trapping

30. Y N
31. Y (N)
32. (Y) N
33. (Y) N
34. (Y) N
35. (Y) N
36. (N) Y

See comment form for Chincoteague Ridge/Swales

Nutrient Retention

37. Y N
38. Y (N)
39. (Y) N
40. (Y) N
41. (Y) N
42. (N) Y

See comment form for Chincoteague Ridge/swales

Fish Food Chain/ Habitat

43. Y (N)
44. Y (N)
45. Y (N)
46. (Y) N
47. Y (N)
48. (Y) N
49. Y (N)
50. (Y) N
51. (Y) N
52. Y (N)
53. (N) Y

See comment form for Chincoteague Ridge/Swales

Wildlife Habitat

54. Y N
55. Y (N)
56. (Y) N
57. (Y) N
58. Y (N)
59. Y (N)
60. (N) Y

See Comment form for Chincoteague Ridge/swales

See Comment form for Chincoteague Ridge/Swales

Active Recreation

61. Y (N)
62. (Y) N
63. Y (N)
64. (Y) N
65. Y (N)
66. Y (N)
67. N (Y)

Passive

68. Y (N)
69. Y (N)
70. Y (N)
71. Y (N)
72. Y (N)
73. Y (N)
74. Y (N)
75. (Y) N
76. Y (N)
77. Y (N)
78. N (Y)

Form "A" Comments (High School East Study Site)

1.1	Water enters this site through ditch from borrow pit/wetland area to the east except during dry periods
1.1	(Basin) Drainage into jeep trail ditch from other areas during normal and wet periods
1.2	(Basin) Jeep trail ditch is tidal for at least a kilometer from Chincoteague Bay east
1.3	(Basin) Tidal waves move up jeep trail ditch during dry and normal conditions
5.2	See site map (Figure 7) and definitions for this site
6.1-6.2	The combination of borrow pit, drainage ditches, and wetlands exceeds 2 ha but is less than 16 ha
7	Predictor not used
8	Sub-watershed = forested ridges within WIA and developed area along jeep trail ditch. Basin area = greater than 20% area of sub-watershed
9	Predictor not used
15.0	Much of the sub-watershed is scrub/shrub along with considerable areas of forest
16.0	Disturbance (school construction, land grading, borrow pit) occurred more than 10 years ago. Because of extensive areas of scrub/shrub (vegeation less than 6 m tall), area is not predominantly forest
22.2	While pines make up a significant part of the vegetation, Myrica is the dominant vegetation. Probably in a few years pines will dominate
23.1-23.9	Soils are predominantly sand; however, there are spots under the borrow pit and under certain wetland areas where there is a thin layer of organic material on top of the sand
24.1-24.6	Salt water intrusion occurs along the jeep trail and into the borrow pit during normal and dry periods

26.1-26.11	Borrow pit and canal are permanently flooded. WIA is seasonally flooded
34	Mean depth is difficult to estimate (borrow pit = deep; other wetlands = very shallow): this is our best guess (ridges and sub-watershed ignored)
35.2	Unvegetated area (borrow pit) is greater than 8 m
36	These are estimates: we have no measurements
39.6	Jeep trail canal
42	Area of borrow pit and canals exceed 10% of WIA
44	Considering areas along Chincoteague Bay
50	Some duck activity and food, but not 10% of area
51	Answered "no" because there is no open water (defined as greater than 2 m) in the WIA
52.2	Tree dominated wetland = low (primarily red maple) Phragmites, etc. = high
64	Bottom of borrow pit, and canal may not always be above 5 ppm due to accumulated organic matter on the bottom